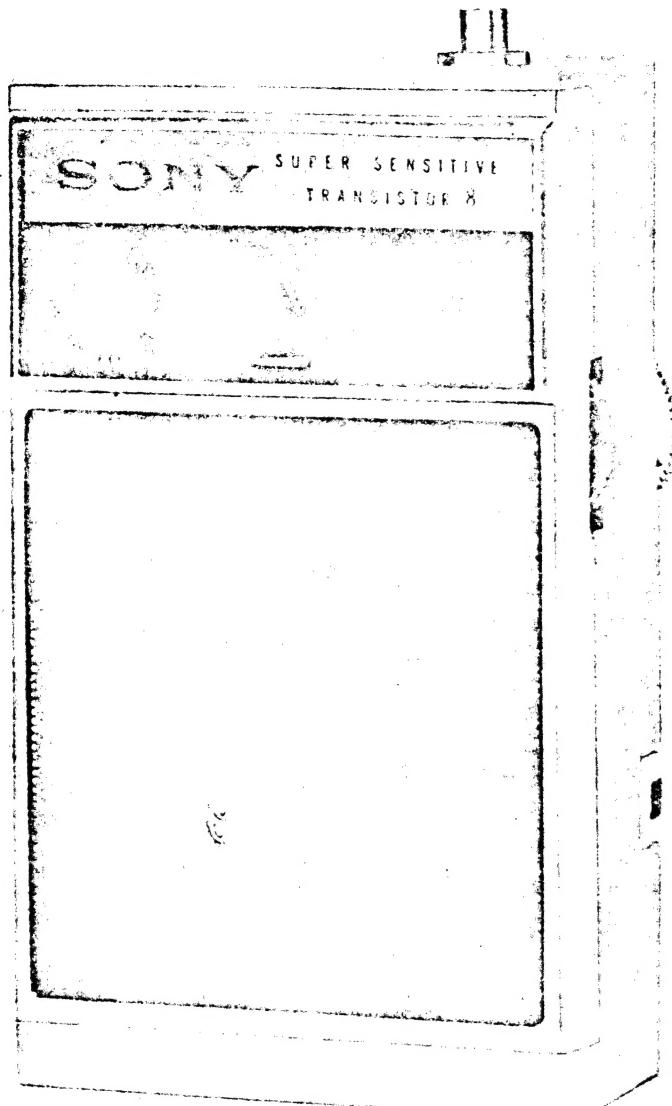


# TR-830

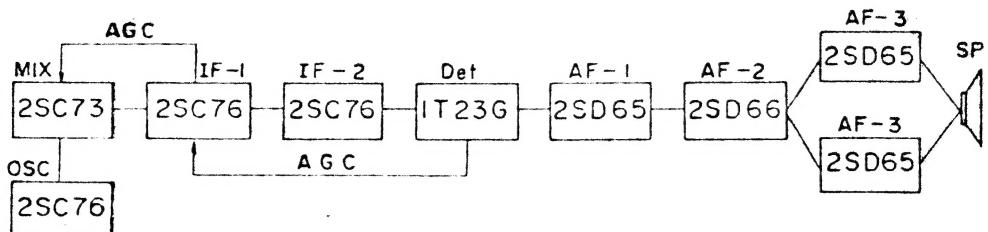


## Specifications

Circuit: 8 Transistor Superheterodyne  
Frequency Coverage: MW 530—1,605 Kc (566--187 m)  
Intermediate Frequency: 455 Kc  
Antenna System: Built-in Ferrite Bar Antenna  
Maximum Sensitivity: 34 dB (50  $\mu$ V/m)  
(at 10mW output)  
Selectivity: 17 dB at 10 Kc 'off resonance, at 1,400 Kc  
Output Power: 130 mW (undistorted)  
Current Drain: 7.0 mA at zero signal, 33 mA at 130 mW output  
Speaker: 2-3/8" (6 cm) PM dynamic, 8  $\Omega$   
Battery: Eveready 216 (006P) or Equivalent (9 Volts)  
Dimensions: 4-3/8"  $\times$  2-5/8"  $\times$  1-3/8" (109  $\times$  67  $\times$  36 mm)  
Weight: 0.60 lb. (0.27 kg.)

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## Block Diagram

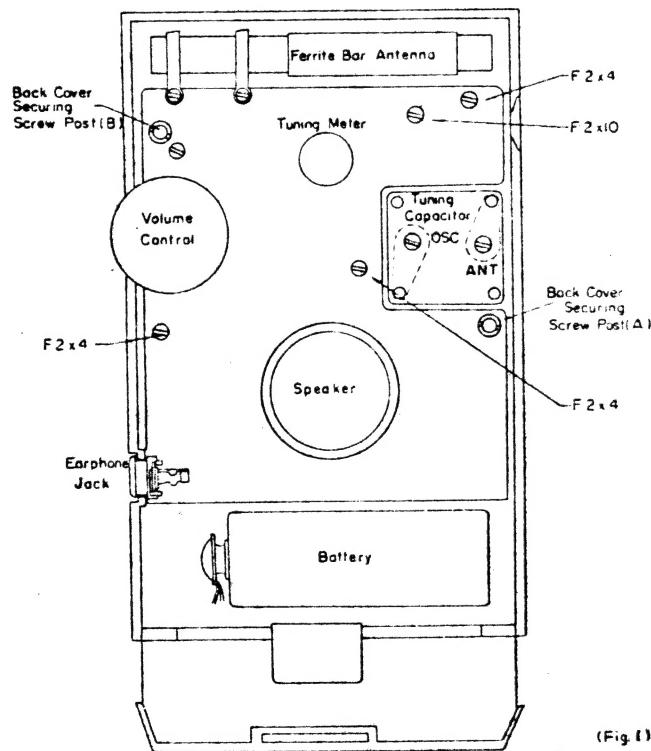


### To Remove the Circuit Board From the Cabinet

- (1) Open the Battery Lid and take out the Battery.
- (2) Remove the two Back Cover Holding Screws (+) K2 X 4 and open the Back Cover.
- (3) Remove the Tone Setting Switch from the Back Cover by pulling straight out.
- (4) Remove the Earphone Jack from the Cabinet by pulling straight out.
- (5) Remove the two Back Cover Securing Screw Posts (A) and the Circuit Board Holding Screw (F2 X 10) indicated by red arrows in Fig. 1.
- (6) Unsolder the two leads (a white and a black) for the Speaker at the speaker terminals.

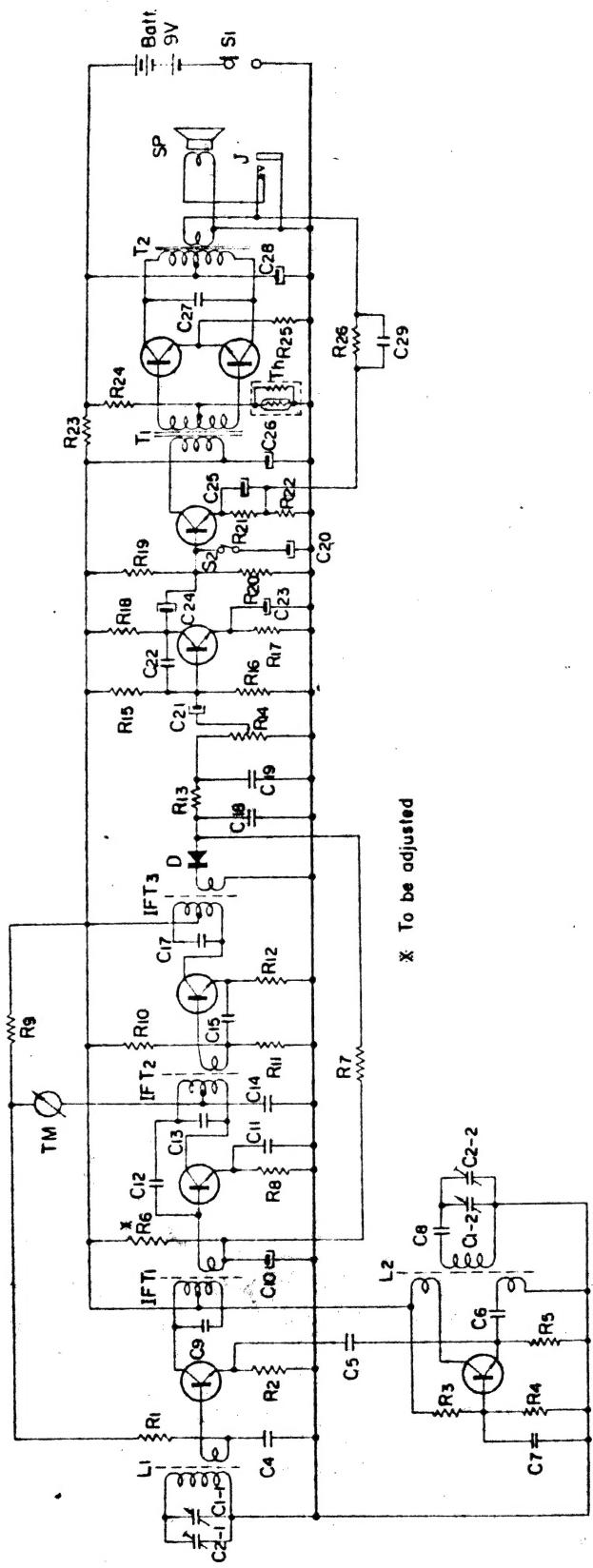
### To Remove the Tuning Capacitor Holding Plate from the Chassis

- (1) Unsolder the two leads (a white and a red) for the Tuning Meter at the Circuit Board.
- (2) Unsolder the three leads of the Tuning Capacitor at its terminals.
- (3) Remove the three Tuning Capacitor Holding Plate Set Screws (F2 X 4) indicated by red arrows in Fig. 1.



**Schematic Diagram**

X1 2SC73      X3 2SC76      X4 2SC76      X5 2SD65      X6 2SD66      X7.8 2SD65



X2 2SC76

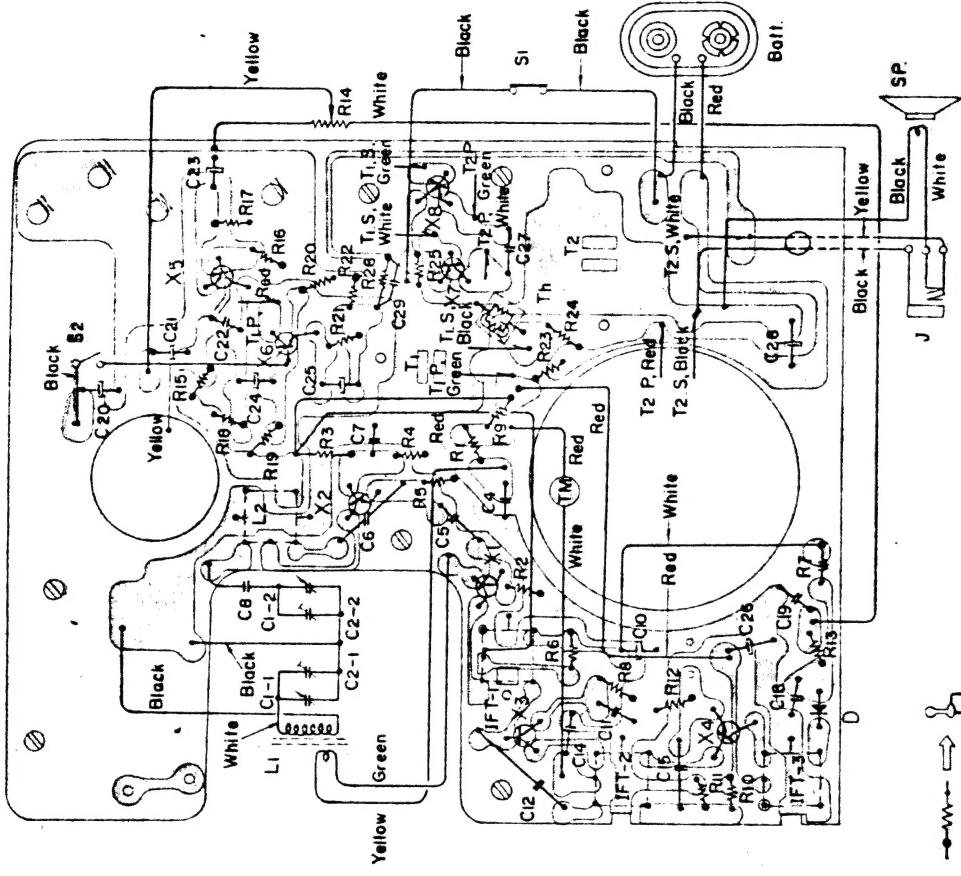
## Electronic Parts List

| Part No.     | Symbol            | Description          | Part No.           | Symbol             | Description               | Part No.        | Symbol                             | Description |
|--------------|-------------------|----------------------|--------------------|--------------------|---------------------------|-----------------|------------------------------------|-------------|
| 1-401-189-11 | L <sub>1</sub>    | Ferrite Bar Antenna  | 1-203-635-00       | R <sub>3</sub>     | 39KΩ 1/2W Carbon          | C <sub>4</sub>  | —deleted—                          |             |
| 1-405-113-11 | L <sub>2</sub>    | Oscillator Coil      | -425-00            | R <sub>4</sub>     | 5.6KΩ "                   | C <sub>4</sub>  | 0.02μF Ceramic                     |             |
| 1-403-025-02 | IFT <sub>1</sub>  | If Transformer       | -423-00            | R <sub>5</sub>     | 2.2KΩ "                   | C <sub>5</sub>  | 0.002μF Mylar                      |             |
| 1-026-02     | IFT <sub>2</sub>  | "                    | -431-00            | *R <sub>6</sub>    | 120KΩ "                   | C <sub>6</sub>  | 0.002μF "                          |             |
| -027-02      | IFT <sub>3</sub>  | "                    | -425-00            | R <sub>7</sub>     | 5.6KΩ "                   | C <sub>7</sub>  | 0.01μF Ceramic                     |             |
| 1-423-062-16 | T <sub>1</sub>    | Driver Transformer   | -420-00            | R <sub>8</sub>     | 470Ω "                    | C <sub>8</sub>  | 130PF Syral                        |             |
| 1-427-090-12 | T <sub>2</sub>    | Output Transformer   | -427-00            | R <sub>9</sub>     | 10KΩ "                    | C <sub>9</sub>  | 150PF [built in IFT <sub>1</sub> ] |             |
| 1-502-093-12 | S <sub>P</sub>    | Speaker              | -635-00            | R <sub>10</sub>    | 39KΩ "                    | C <sub>10</sub> | 10μF 3V Electrolytic               |             |
| 1-507-050-03 | J                 | Telephone Jack       | -434-00            | R <sub>11</sub>    | 3.3KΩ "                   | C <sub>11</sub> | 0.02μF Ceramic                     |             |
| 1-520-002-00 | TM                | Tuning Meter         | -420-00            | R <sub>12</sub>    | 470Ω "                    | C <sub>12</sub> | 1PF "                              |             |
| 1-513-152-00 | S <sub>1</sub>    | Power Switch         | -339-00            | R <sub>13</sub>    | 1.8KΩ "                   | C <sub>13</sub> | 150PF [built in IFT <sub>2</sub> ] |             |
| -075-11      | S <sub>2</sub>    | Tone Selector Switch | 1-221-096-00       | R <sub>14</sub>    | 5KΩ Volume Control        | C <sub>14</sub> | 0.01μF Ceramic                     |             |
| 1-528-006-00 | Batt.             | Battery (9V)         | 1-203-593-00       | R <sub>15</sub>    | 36KΩ 1/2W Carbon          | C <sub>15</sub> | 0.01μF "                           |             |
|              |                   |                      | -425-00            | R <sub>16</sub>    | 5.6KΩ "                   | C <sub>16</sub> | —deleted—                          |             |
|              |                   |                      | -421-00            | R <sub>17</sub>    | 1KΩ "                     | C <sub>17</sub> | 150PF [built in IFT <sub>3</sub> ] |             |
|              | X <sub>1</sub>    | Transistor 2SC73     | -421-00            | R <sub>18</sub>    | 1KΩ "                     | C <sub>18</sub> | 0.02μF Ceramic                     |             |
|              | X <sub>2</sub>    | " 2SC76              | -428-00            | R <sub>19</sub>    | 27KΩ "                    | C <sub>19</sub> | 0.01μF "                           |             |
|              | X <sub>3</sub>    | " 2SC76              | -427-00            | R <sub>20</sub>    | 10KΩ "                    | C <sub>20</sub> | 0.3μF 1.5V Electrolytic            |             |
|              | X <sub>4</sub>    | " 2SC76              | -421-00            | R <sub>21</sub>    | 1KΩ "                     | C <sub>21</sub> | 10μF 3V "                          |             |
|              | X <sub>5</sub>    | " 2SD65              | -418-00            | R <sub>22</sub>    | 19Ω "                     | C <sub>22</sub> | 0.005μF Mylar                      |             |
|              | X <sub>6</sub>    | " 2SD66              | -419-00            | R <sub>23</sub>    | 220Ω "                    | C <sub>23</sub> | 10μF 3V Electrolytic               |             |
|              | X <sub>7</sub>    | " 2SD65              | -426-00            | R <sub>24</sub>    | 7.5KΩ "                   | C <sub>24</sub> | 10μF 6V "                          |             |
|              | X <sub>8</sub>    | " 2SD65              | -418-00            | R <sub>25</sub>    | 10Ω "                     | C <sub>25</sub> | 30μF 3V "                          |             |
| D            | Diode 1N23G       |                      | -610-00            | R <sub>26</sub>    | 680Ω "                    | C <sub>26</sub> | 30μF 10V "                         |             |
| Th           | Thermistor CS-120 |                      |                    |                    |                           | C <sub>27</sub> | 0.04μF Ceramic                     |             |
|              |                   |                      |                    |                    |                           | C <sub>28</sub> | 50μF 10W Electrolytic              |             |
|              |                   |                      |                    |                    |                           | C <sub>29</sub> | 0.02μF Ceramic                     |             |
| 1-203-427-00 | R <sub>1</sub>    | 10KΩ 1/2W Carbon     | 1-151-085-11       | C <sub>1-1-2</sub> | Tuning Capacitor, 2 gang  | 1-101-073-14    |                                    |             |
| -633-00      | R <sub>2</sub>    | 30KΩ "               | C <sub>2-1-2</sub> |                    | Trimmer Capacitor, 2 unit |                 |                                    |             |

\* To be adjusted

**Mounting Diagram**

—Printed Side—



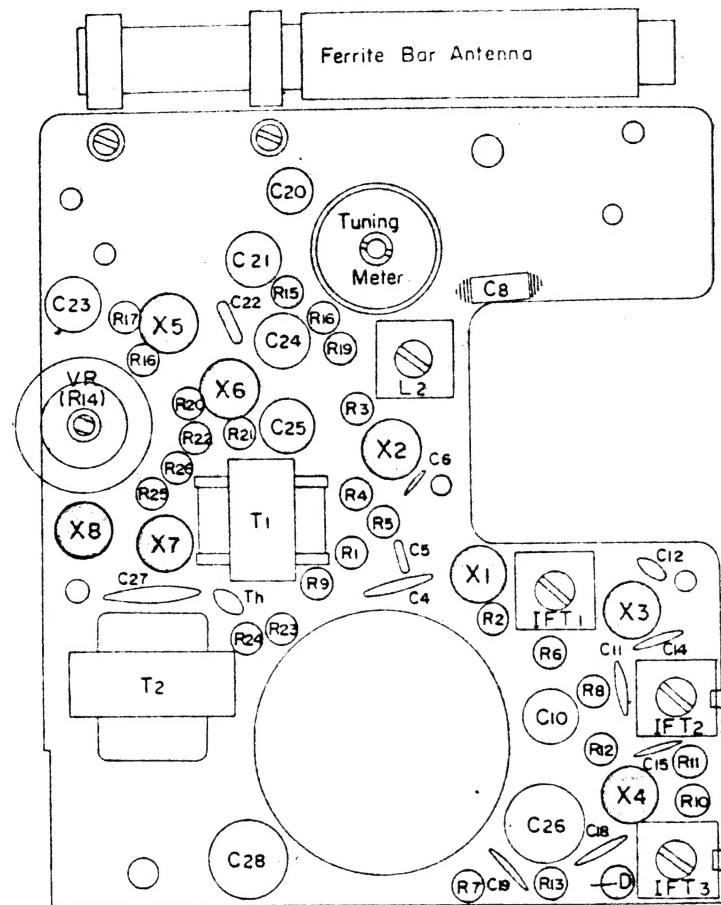
C29 is mounted on the printed side.

T1.P : T1. Primary    T2.P : T2 Primary

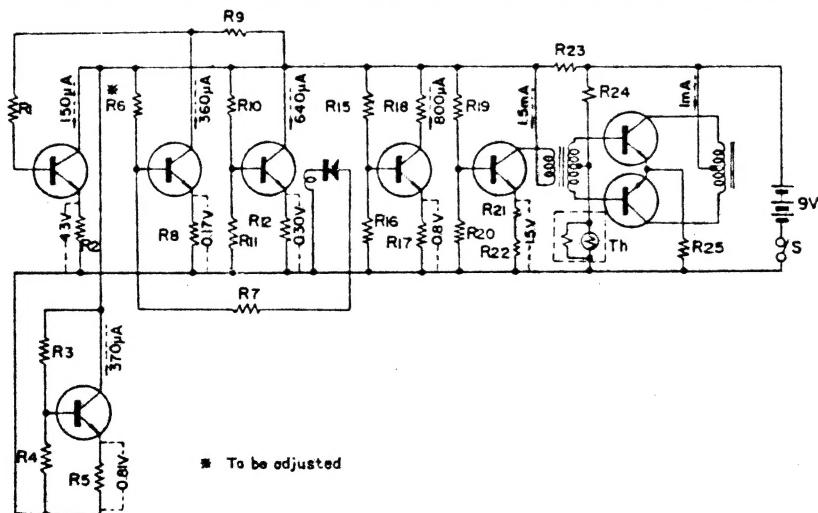
T1.S : T1. Secondary    T2.S : T2. Secondary

**Mounting Diagram**

— Parts Side —



**Voltage and Current Distribution Chart at Zero Signal**



# **Technical Data Sheet**

## **Preparation**

### **Receiver to be aligned**

|                               |  |
|-------------------------------|--|
| Power source voltage :        | Keep 9 Volts during the alignments.  |
| Volume control setting :      | Maximum  |
| Tone control switch setting : | High (upper position)  |
| Load for output :             | Connect $8\Omega$ resistor instead of Speaker.   |
| Signal source :               | Use SSG (Standard Signal Generator) which can deliver RF signals modulated at 30% with 1,000 c/s or 400 c/s. |
| Output meter :                | Connect across the Load Resistor $8\Omega$ . (VTVM can be used also)   |
| Radiating antenna :           | Use loop type.   |

### **Note :**

When the Back Cover is removed, the Tone Control Switch tends to come off the Cabinet together with the Back Cover.

During the Tracking Alignment procedure, fix the Tone Control Switch to the Cabinet at its position temporarily with non-metallic material such as adhesive tape.

Otherwise mis-alignment will be resulted.

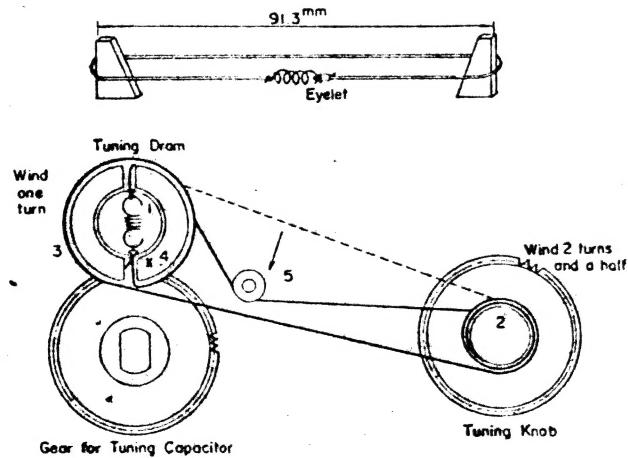
## **Frequency Coverage Alignment**

- (1) Deliver 520 Kc signal from the SSG.
- (2) Set the Tuning Capacitor at the maximum capacitance position by turning the Tuning Knob of the Receiver counter-clockwise.
- (3) Adjust the core of the OSC Coil (L2) to tune to the signal.
- (4) Set the Tuning Capacitor at the minimum capacitance position by turning the Tuning Knob of the Receiver clockwise.
- (5) Deliver 1,680 Kc signal from the SSG.
- (6) Adjust the OSC Trimmer Capacitor (C2-2) to tune to the signal.
- (7) Repeat the above procedures (1~6) to obtain satisfactory result.

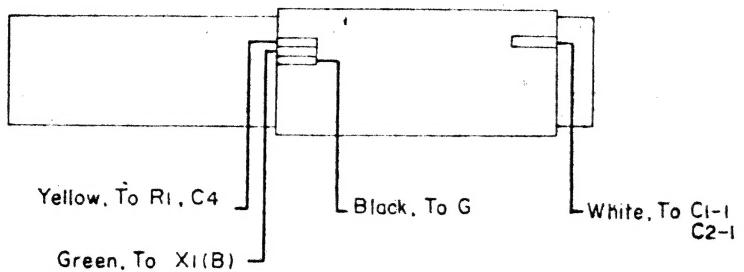
## **Sensitivity Alignment**

- (1) Deliver 620 Kc signal from the SSG.
- (2) Tune to the signal by turning the Tuning Knob of the Receiver.
- (3) Adjust the position of the ANT Coil (L1) along the Ferrite Bar to obtain the maximum output.
- (4) Deliver 1,400 Kc signal from the SSG.
- (5) Tune to the signal by turning the Tuning Knob of the Receiver.
- (6) Adjust the ANT Trimmer Capacitor (C2-1) to obtain the maximum output.
- (7) Repeat the above procedures (1~6) until the maximum output is obtained.

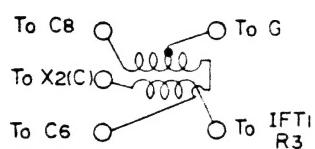
## **To String the Dial Cord**



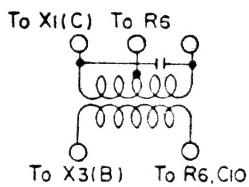
### L1 Ferrite Bar Antenna



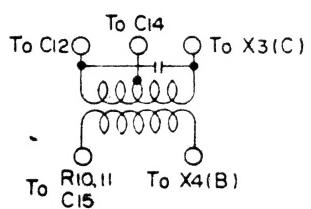
### L2 OSC Coil



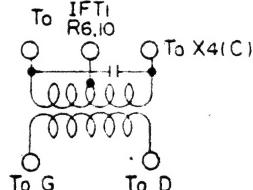
### IFT1



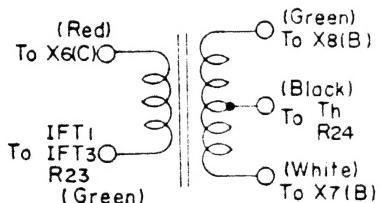
### IFT2



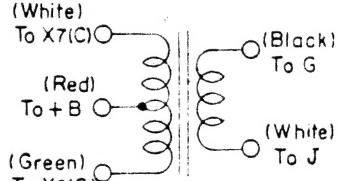
### IFT3



### T1 Driver Transformer



### T2 Output Transformer



#### Impedance DC Resistance

Primary 3.9KΩ  
Secondary 1.8KΩ

#### Impedance DC Resistance

Primary 820Ω  
Secondary 8Ω

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